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PROCEEDINGS
OF THE
ACADEMY OF NATURAL SCIENCES
OF
PHILADELPHIA.

1878.

JANUARY 1, 1878.

The President, Dr. RUSCHENBERGER, in the chair.

Thirteen members present.

The following papers were presented for publication:—

“Notes on the Natural History of Fort Macon, N. C., and Vicinity (No. 4),” by Elliott Coues, M.D., and H. C. Yarrow, M.D.

“On the Mechanical Genesis of Tooth-Forms,” by John A. Ryder.

JANUARY 8.

The President, Dr. RUSCHENBERGER, in the chair.

Thirty-one members present.

The deaths of J. P. Kirtland, member, and Dr. Louis Pfeiffer, and Prof. C. Nees Von Esenbeck, correspondents, were announced.

JANUARY 15.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-six members present.

A paper entitled “Descriptions of New Species of Invertebrate

Fossils from the Carboniferous and Upper Silurian Rocks of Illinois and Indiana," by C. A. White, M.D., was presented for publication.

Boring of Corollas from the Outside by Honey-Bees.—Mr. THOMAS MEEHAN referred to the practice of the humble-bee in boring the corolla instead of entering by the mouth, even when there might be no great difficulty in doing so. A few years ago it was not noticed that any flowers were despoiled of their sweets in this extraneous way, but it was now known that the list of plants so treated was very large, and the humble-bee in America had already lost considerable of its reputation as an agent in the cross fertilization of flowers. He had carefully watched the honey-bee for some years, but could never feel sure that it also bored the corollas in the same way, for though he had often seen them working from the outside, he suspected that they used the holes made by the humble-bee. Mr. Ryder, at one of our meetings, had insisted that the honey-bee did actually work occasionally in this way, and Mr. Meehan said he was thus led to go over the subject again, proving Mr. Ryder to be right. Late in the autumn, long after most other flowers were gone, and with no humble-bees about, scarlet sages, *Salvia splendens*, for nearly a week together, received the sole attention of the honey-bees, which worked among the flowers in great numbers, in all cases boring the corollas near the base from the outside.

In connection with this fact, he said that among the scarlet sages were a large number of the pure white variety, but the bees visited them precisely as they did the scarlets, going to either indiscriminately. As bees usually contrive to work on one kind of flower only so long as there were plenty of that one kind, the fact of their working on these two colors at once showed that they did not make use of color only as a guide to the flowers, but that they had intelligence enough to know the *Salvia splendens* as well as we would, by experience, no matter under what color the species might be represented; and the experiments we read of, in which the bees failed to make use of a fresh flower when its corolla was taken away, merely showed that the bee was not acting from an instinctive attraction by color, but had been deceived into the idea that the flower had faded away. Insects had evidently not only instinct, but were able to exercise a judgment created by experience. In a recent number of *Nature*, he said it was on record that a day moth, a *Macroglossum*, made an attempt to extract honey from the artificial flowers on a lady's bonnet, but it was so well able to profit by experience as not to make the attempt a second time.

He illustrated on the black-board the peculiar lever-like appendages or false anthers in *Salvia*, and said that these had been looked on as special arrangements for cross fertilization. When a bee